



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Pellerin et al.
Serial No.: 10/824,109
Group Art Unit: 3753
Filed: 04/14/2004
Examiner: Cozart, Jermie
For: VALVE STEM INSTALLATION SYSTEM AND METHOD OF
INSTALLING VALVE STEM

**RENEWED REQUEST BY APPLICANT FOR INTERFERENCE WITH PATENT
UNDER 37 C.F.R. 1.607**

MAIL STOP Applicable Information
Commissioner for Patents
P.O. BOX 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants seek to have an interference declared between the present application and an unexpired patent as set forth below.

Identification of Patent

Applicants seek to have an interference declared between the present application and United States Patent No. 6,886,231.

Proposed Counts

Count 1 - Applicants propose that interfering subject matter between the parties is moving a valve stem with a robotic manipulator to insert the valve stem in a valve stem aperture defined by wheel. Claims 1, 19, 35, and 42 of United States Patent No. 6,886,231 correspond exactly to the first proposed count. Claims 17, 33, 44, and 50 of the Present Application correspond exactly to the first proposed count.

Count 2 - Applicants propose that interfering subject matter between the parties is identifying at least one physical feature of the rim with a machine vision system. Claims 2, 4, 20, and 22 of United States Patent No. 6,886,231 correspond exactly to the second proposed count. Claims 18, 20, 34, and 36 of the Present Application correspond exactly to the second proposed count.

Count 3 - Applicants propose that interfering subject matter between the parties is selectively moving the valve stem to the gauging station from one of a plurality of valve stem delivery stations in response to the determining step, each delivery station having a differently configured valve stem mounted thereon. Claims 3 and 21 of United States Patent No. 6,886,231 correspond exactly to the third proposed count. Claims 19 and 35 of the Present Application correspond exactly to the third proposed count.

Count 4 - Applicants propose that interfering subject matter between the parties is tightening a nut over a threaded portion of the valve stem extending from the rim after the valve stem has been inserted with respect to the aperture. Claims 8 and 38 of United States Patent No. 6,886,231 correspond exactly to the fourth proposed count. Claims 22 and 46 of the Present Application correspond exactly to the fourth proposed count.

Count 5 - Applicants propose that interfering subject matter between the parties is a nut runner mounted on the robotic manipulator. Claims 9 and 27 of United States Patent No. 6,886,231 correspond exactly to the fifth proposed count. Claims 23 and 37 of the Present Application correspond exactly to the fifth proposed count.

Count 6 - Applicants propose that interfering subject matter between the parties is conveying valve stems to the delivery station in a serial fashion with conveying means. Claims 11 and 29 of United States Patent No. 6,886,231 correspond exactly to the sixth proposed count. Claims 25 and 39 of the Present Application correspond exactly to the sixth proposed count.

Count 7 - Applicants propose that interfering subject matter between the parties is holding the rim substantially stationary and urging the valve stem toward the rim with the robotic manipulator. Claims 12 and 30 of United States Patent No. 6,886,231 correspond exactly to the seventh proposed count. Claims 26 and 40 of the Present Application correspond exactly to the seventh proposed count.

Count 8 - Applicants propose that interfering subject matter between the parties is grasping the valve stem with the robotic manipulator and moving along the path of travel in response to computer-controlled signals. Claims 14 and 37 of United States Patent No. 6,886,231 correspond exactly to the eighth proposed count. Claims 28 and 45 of the Present Application correspond exactly to the eighth proposed count.

Count 9 - Applicants propose that interfering subject matter between the parties is actuating the robotic manipulator to move the valve stem to the rim located at a delivery station. Claim 15 of United States Patent No. 6,886,231 corresponds exactly to the ninth proposed count. Claim 29 of the Present Application corresponds exactly to the ninth proposed count.

Count 10 - Applicants propose that interfering subject matter between the parties is grasping the valve stem with the robotic manipulator computer-controlled and having a valve-

stem-gripper-attachment articulatable and positionable to be in a predetermined orientation with respect to the aperture in the rim. Claims 16, 32, 39, and 43 of United States Patent No. 6,886,231 correspond exactly to the tenth proposed count. Claims 30, 42, 47, and 51 of the Present Application correspond exactly to the tenth proposed count.

Application of claim terms to the disclosure

1. Amendments to the Specification supporting the independent claims.

A second preliminary amendment is filed concurrent with this Request for Interference. Amendments to the specification have been made in view of M.P.E.P. §§ 2301.01(c) and 608.01(o). With respect to claims 17, 33, 44, and 50 of the Present Application, paragraph [0017] of the application has been amended such that the identification station 24 is alternatively referred to as a gauging station. A comparison between the present application as-filed and the '231 patent demonstrates that the identification station of the present application and the gauging station of the '231 patent are analogous. In addition, paragraph [0017] has been amended to more clearly state that the location of the valve stem aperture relative to the identification or gauging station is determined to parallel the claim language. The first four sentences of paragraph [0017] state that position of the valve stem aperture is determined by the image taken of the wheel by the camera and that the camera is disposed at the identification station.

With respect to claims 17, 33, 44, and 50, paragraph [0024] has been amended to parallel the claim language that the central axis of the aperture and a longitudinal axis of the valve stem are coaxially aligned with respect to one another prior to insertion of the valve stem through the aperture. This arrangement was set forth in the application as filed using different terminology.

With respect to claims 17, 33, 44, and 50, paragraph [0021] has been amended to parallel the claim language that the robotic apparatus is a programmable robotic manipulator having an arm capable of compound, multi-axial movement. The robotic apparatus 16 described in the specification and shown in the Figures, especially Figure 6, would be recognized by one of ordinary skill in the art as a programmable robotic manipulator having an arm capable of compound, multi-axial movement.

With respect to claims 44 and 50, paragraph [0021] has been amended to parallel the claim language that the robotic apparatus operably engages the valve stem. The application as filed discloses that the robotic apparatus operably engages the valve stem.

With respect to claims 44 and 50, it is submitted that paragraph [0024] discloses that the valve stem is inserted in the aperture of the rim.

2. Identification of support in the specification for the dependent claims.

With respect to claims 18 and 34, paragraph [0017] discloses a machine vision system in the form of a camera that identifies at least one physical feature of a rim.

With respect to claims 19 and 35, paragraph [0021] discloses a plurality of valve stem delivery stations and that different valve stem configurations are disposed at different valve stem delivery stations. Paragraph [0017] discloses that operations downstream of the identification station are controlled at least in part by the identification of the wheel at the identification station.

With respect to claims 20 and 36, paragraph [0017] discloses identifying a rim as one of a plurality of different rims in response to inspection with a machine vision system.

With respect to claims 22 and 46, paragraph [0021] discloses tightening a nut on a threaded valve stem.

With respect to claims 23 and 37, paragraph [0021] discloses a nut runner mounted on a robotic apparatus.

With respect to claims 25 and 39, Figure 6 shows valve stems (unnumbered) valve stems being conveyed, or supplied, in serial fashion.

With respect to claims 29 and 45, paragraphs [0021] – [0025] disclose actuating a robotic manipulator to move a valve stem to a rim. Applicants note that claims 29 and 45 recite steps separate from the moving step recited in the independent method claims.

With respect to claims 30, 42, 47 and 51, paragraph [0021] and Figures 1 and 4 – 10 disclose grasping a valve stem with the robotic manipulator computer-controlled and having a valve-stem-gripper-attachment articulatable and positionable to be in a predetermined orientation with respect to the aperture in the rim.

Determination of Interference-in-Fact

An interference may be declared when any application and an unexpired patent contain claims for the same patentable invention. M.P.E.P. §2301.02, citing 37 C.F.R. 1.601. An interference-in-fact exists when at least one claim of a party that is designated to correspond to a count and at least one claim of an opponent that is designated to correspond to the count define the same patentable invention. *Id.* In determining whether an interference is necessary, a claim should be given the broadest interpretation which it will reasonably support, bearing in mind a claim

copied from a patent, if ambiguous, should be interpreted in the light of the patent in which it originated for determining whether a party has a right to copy a claim. M.P.E.P. §2301.01(D).

In the present application, the independent claims of the proposed count recite the following:

moving the valve stem relative to the rim along a programmable path of travel during the coaxially aligning step and along the aligned axes to insert the valve stem through the aperture, the path of travel defined with a programmable robotic manipulator having an arm capable of compound, multi-axial movement and having a plurality of programmed paths corresponding to a plurality of different size wheel rim and valve stem combinations to be assembled.

Claim 26 of the present application further defines the moving step recited in the independent method claim 17. Claim 28 of the present application recites and further defines movement along the path of travel. Claim 39 of the present application further defines movement of the valve stem for insertion in the valve stem aperture. As set forth above, paragraph [0021] has been amended to parallel the claim language that the robotic apparatus is a programmable robotic manipulator having an arm capable of compound, multi-axial movement to parallel the claim language. The remaining text in the claim language set forth above has not been added to the specification, nor has language been added to the specification to parallel the claim language in claims 26, 28 and 39.

Applicants submit that the Examiner must determine whether the present application discloses moving a valve stem relative to the rim along a programmable path of travel during the coaxially aligning step and along the aligned axes to insert the valve stem through the aperture” to find an interference-in-fact exists and an interference should be declared.

In the present application, the movement of the valve stem relative to the rim for insertion in the valve stem aperture is set forth in paragraph [0025] and is best shown in Figures 4 and 5. A moving device 116 includes a plate 126 attached to the robotic apparatus 16. The moving device 116 also includes a cylinder 128 attached to the plate 126 and a rod 130 extendable and retractable with respect to the cylinder 128. The valve stem holding pin 112 is fixedly associated with the end of the rod 130. A support plate 114 is rotatably associated with the cylinder 128. After the valve stem aperture 118 has been located the robotic apparatus 16 moves the support plate 114 to engage the lip 120a of the wheel 14. ***The rod 130 is retracted in the cylinder 128, moving the valve stem holding pin 112 through the aperture 118a. The rod 130 is extended to remove***

the valve stem holding pin 112 from the aperture 118a, leaving the valve stem in the valve stem aperture 118a.

The cooperation between the rod 130 and the cylinder 128 defines the path of movement of the valve stem to insert the valve stem through the aperture 118a, the valve stem being supported on the valve stem holding pin 112. The cooperation between the rod 130 and the cylinder 128 to move the valve stem occurs after the support plate 114 has engaged the lip 120a of the wheel 14. In other words, the robotic apparatus 16 has stopped moving when the rod 130 and the cylinder 128 cooperate to move the valve stem. Therefore, the determination of interference-in-fact hinges on whether the path defined by the rod 130 and the cylinder 128 constitutes a “programmable path of travel defined by a robot.”

Applicants submit that the prosecution history of the ‘231 patent is relevant to the present determination of interference-in-fact since the meaning of a “programmable path of travel” was defined during the prosecution of the ‘231 patent. In an Office Action dated May 21, 2004, Examiner Cozart rejected the claims over Doan et al., U.S. Pat. No. 5,940,960. The Examiner asserted that Doan et al. disclosed a valve stem moved relative to rim along a programmable path of travel. In a Response dated October 24, 2004, the applicants asserted that the apparatus disclosed by Doan et al. “merely advances or retracts its valve stem along a single path via an air cylinder 144 which is actuated to drive support plate 140, holding pin 126 and valve stem insertion tool 54, upwardly or to retract the same.” Response, page 19, line 33 through page 20, line 1. The applicants repeated this characterization at page 20, lines 8 – 9 and page 22, lines 21 – 24. At page 22, line 28, the applicants elaborated that Doan et al. “discloses movement of its valve stem insertion tool horizontally and vertically in two dimensions not along multi-axial movement or a plurality of programmable paths.”

Applicants further submit that the prosecution history of the parent to the ‘231 patent, U.S. Pat. No. 6,481,083, hereafter the ‘083 patent, is relevant to the present determination of interference-in-fact since the meaning of a “programmable path of travel” was defined during the prosecution of the ‘083 patent. An Examiner Interview Summary Record detailing an interview conducted on May 30, 2002, with Examiner Blount indicates that a proposed amendment relating to “a robot” was discussed in the parent case. The Summary states that Examiner Blount considered the member 43 of Matsumoto, U.S. Pat. No. 5,749,141, a robot. Subsequent to the interview, the independent claims of the ‘083 patent were amended by a Fourth Amendment dated June 24, 2002. The claims were amended to recite that movement to insert the valve stem *occurred along a programmable path of travel defined by a robot*. This same language is recited in the ‘231 patent. The meaning of this phrase was explained in the remarks section of the Fourth Amendment, wherein it was stated that Matsumoto “is a mechanical workstation for inserting a valve stem into

an aperture of a wheel rim even though the position of the aperture varies in the radial and the width directions of the wheel rim.”

Matsumoto discloses a valve press-fitting device 43 comprising a push rod actuating unit 45 which includes the push rod 44 and an air cylinder for vertically moving the rod 44. A tire valve 50, or valve stem, is mounted on the push rod 44. The push rod actuating unit 45 is mounted on a support 48 which is supported on the machine base 1 so as to be movable toward and away from the axis of rotation of a wheel driving pulley 37. The wheel driving pulley 37 rotates a wheel W to locate the valve stem aperture. The support 48 moves to position the push rod 44 depending on the wheel size, wheel type, etc. of the wheel W as detected by a wheel size detecting device 18. ‘141 patent, column 6, lines 52 – 61. When the rotation of the wheel driving pulley 37 or the wheel W is stopped after locating the valve stem aperture, a corresponding signal is delivered to a drive unit for the support 48. The support 48 is moved toward or away from the axis of rotation of the wheel driving pulley 37 in accordance with the size, width, and type of the wheel W previously detected, whereby the position of the valve press-fitting device 43 is adjusted. ‘141 patent, column 10, lines 9 – 17. When the adjustment of the position of the valve press-fitting device 43 is completed, the device 43, on receiving a signal, operates so that the air cylinder of its push rod actuating unit 45 extends to raise the push rod 44 along the axis of the valve hole Wa of the wheel W. Thereupon, the tire valve 50 starts to be inserted into the valve hole Wa of the wheel W with a valve cap 51 ahead, as indicated by two-dot chain line in FIG. 9. ‘141 patent, column 10, lines 18 – 25.

Applicants respectfully request the Examiner determine whether an interference-in-fact exists in view of the facts set forth above.

Sufficiency of Support in United States Patent No. 6,886,231 for the Claims

The claims recited in United States Patent No. 6,886,231 derive support solely from Column 11, line 65 through Column 12, line 22 and Figures 7 and 8. This content was added to the parent of the ‘231 patent, United States Patent Number 6,481,083, to overcome a rejection under 35 U.S.C. 112 of the ‘083 patent for lack of support in the original specification for moving a valve stem to a rim. Applicants respectfully contend that the specification of the ‘231 patent fails to support the claims pursuant to 35 U.S.C. 112. For example, a second valve-stem-position identification is required prior to inserting the valve stem 428 into the aperture 426 since the robot holding the valve stem 428 will not know where the aperture 426 is after movement of the rim from the video camera 430. The system disclosed in the ‘231 patent requires a secondary visioning system to function. Furthermore, the gripper 438 disclosed in the ‘231 application is not capable of inserting the valve stem 428 into an aperture in the rim 412.

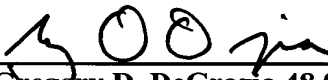
For example, the gripper 438 grips the narrow shaft of the valve stem 428 and prevents the narrow shaft of the valve stem 428 from being inserted through the aperture in the rim 412. In addition, the rubber grommet of the valve stem 428 must be inserted from the back side (inside) of the rim 412 so it is concealed by the tire after attachment. The disclosed gripper 438 is not capable of inserting the valve stem 428 into the aperture from the back side of the rim 412.

If additional fees are incurred because of this Request and not included, the Commissioner is authorized to charge said additional fees, as well as credit any overpayments, to Deposit Account No. 08-2789 of Howard & Howard Attorneys, P.C.

Respectfully submitted,

HOWARD & HOWARD ATTORNEYS

June 23, 2005

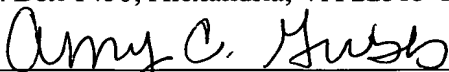


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CERTIFICATE OF MAILING PURSUANT TO 37 C.F.R. §§ 1.1 AND 1.8

I hereby certify that this Request for Declaration of Interference is being deposited with the United States Postal Service as Express Mail, Label No. EV564947714US postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on **June 23, 2005**.


Amy C. Grubb